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Drinking Water Quality Report

To Our Customers,

Through the extraordinary events of the past year, we endeavor to be a constant for our customers. Just as it is critical for you for the electric utility company to “keep the lights on”, the Cambridge Water Department is here to keep the water flowing. Through challenges like pandemics and emerging contaminants of concern such as PFAS, we are always here to ensure the highest quality water reaches your tap.

This report provides information on your drinking water supplied by the Cambridge Water Department, how it is treated, the quality of the water you receive, and how Cambridge water

meets and exceeds all state and federal drinking water standards. It also contains key information on how you can learn more about our system – from source water to the service to your home.

I encourage you to contact the Water Department with questions, comments, or suggestions about any aspect of the City of Cambridge’s drinking water.

Sincerely,

Sam Corda, Managing Director
Cambridge Water Department
617-349-4770

City of Cambridge
Water Department
2020

Distributed June 2021
PWS ID # 3049000



Where Your Water Comes From Reservoirs

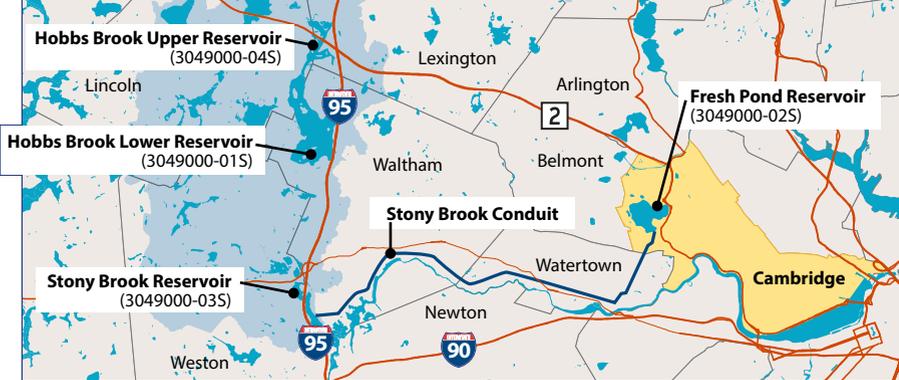
The Cambridge Water System extends across four towns and includes four bodies of water. The Hobbs Brook Upper Reservoir flows into the Hobbs Brook Lower Reservoir and connects with the Stony Brook Reservoir. The water then flows to Fresh Pond Reservoir through an underground aqueduct. The Stony Brook Reservoir watershed extends from Weston, north into the Town of Lincoln. The watershed for the Hobbs Brook Reservoirs includes areas of Waltham, Lexington, and Lincoln. The watershed for Fresh Pond Reservoir is completely within the City of Cambridge. The combined capacity of the Hobbs Brook and Stony Brook reservoir system is 3.1 billion gallons; an additional 1.3 billion gallons of water is stored in Fresh Pond Reservoir. Our water supply is backed up by interconnections to the Massachusetts Water Resources Authority (MWRA) system. For a more detailed map of our water sources and their protection areas please visit cambridgema.gov/water.

Watershed Protection

As part of our ongoing commitment to protecting the water supply, we participated with the Massachusetts Department of Environmental Protection (MassDEP) in preparing a Source Water Assessment Program (SWAP) Report completed in 2003. The SWAP Report assesses the susceptibility of our public water supply and notes the key land use and protection issues, including: Zone A Land Uses, Residential Land Uses, Transportation Corridors, Hazardous Material Storage and Use, and Presence of Oil or Hazardous Materials Contamination Sites.

A copy of the Cambridge SWAP Report can be found on the MassDEP website at mass.gov/doc/cambridge-water-department-swap-report/download or at the Cambridge Water Department.

Because of the developed nature and types of land uses within the Cambridge watershed, our source waters are considered as having "high" susceptibility to contamination. Susceptibility is a measure of a water supply's potential to become contaminated due to land uses and activities within its recharge (watershed) area. If a source is susceptible to contamination, it does not necessarily mean the source has poor water quality.



The Cambridge Water Department has taken the following actions to minimize contamination threats to our water supply:

- ◆ Work cooperatively with watershed towns on emergency response and stormwater management
- ◆ Placed spill kits at strategic points within the watershed
- ◆ Actively monitor source water quality throughout the watersheds, using the data to target source protection
- ◆ Work cooperatively with businesses in the watersheds to encourage source protection
- ◆ Adopted the Fresh Pond Master Plan, which includes long-term protection measures for Fresh Pond Reservoir
- ◆ Implemented storm drainage modifications to divert street runoff away from Fresh Pond Reservoir
- ◆ Dedicated staff resources to inspections, public education, and coordination of source protection efforts

Outlined in a MassDEP-approved Surface Water Supply Protection Plan (2011), the Watershed Division of the Cambridge Water Department updated its comprehensive Source Water Protection Program. Check out: cambridgema.gov/Water/watershedmanagementdivision/sourcewaterprotectionprogram.

To ensure a supply of high quality water, the major components of the program include:

1. **Extensive monitoring** – sampling and analysis of water chemistry and microbiology
2. **Hazardous materials emergency response planning** – to reduce the potential for contamination in the watershed
3. **Partnership development** – relationship-building with other parties in the watershed with common goals
4. **Proactive site review and monitoring** – to minimize potential impacts on the watershed from construction
5. **Stormwater management** – ensuring that Best Management Practices are implemented
6. **Community outreach** – public relations and education

For questions about our source water and our protection efforts, please contact Watershed Manager **David Kaplan** at dkaplan@cambridgema.gov or 617-349-4799.

Seasonal Drought Risk

We typically associate climate change with warming temperatures, an increase in very heavy rainfall and flooding, and sea level rise. But there's another aspect of climate change that more directly impacts our drinking water supply – seasonal drought risk. According to the National Oceanic and Atmospheric Administration (NOAA), seasonal drought risk in summer and fall is projected to increase over the next century due to warming temperatures and earlier snowmelt.



When full, Cambridge's reservoirs store less than a year's supply of water, so it is important that we all use our water wisely!

Let's focus on native and drought resistant plants. Once established, plants native to our area and climate require little water beyond normal rainfall.

- ◆ At **Native Plant Trust Plant Finder** quickly search for the native plants and shrubs that grow best where you live. plantfinder.nativeplanttrust.org/Plant-Search
- ◆ For native plant gardening tips and inspiration visit **Grow Native Massachusetts** grownativemass.org

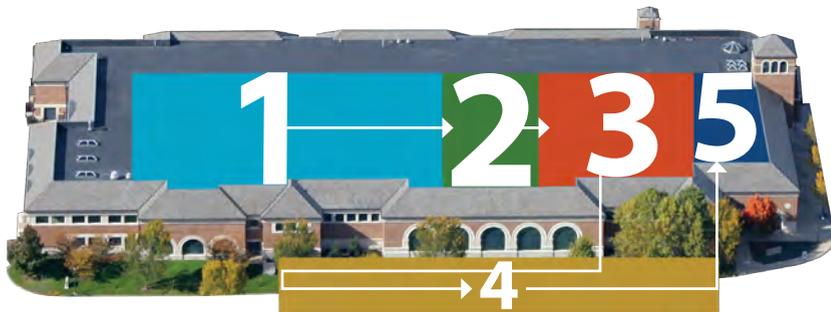
No garden or yard area to plant? Check out these ideas for saving water indoors!

Indoor Water Conservation Guide mass.gov/guides/indoor-water-conservation#-fix-those-leaks!

How Is Your Water Purified?

The source waters of the Cambridge reservoir system undergo extensive treatment at the *Walter J. Sullivan Water Purification Facility (WPF)* at Fresh Pond Reservation before drinking water is delivered to your home or business. The water is treated to exceed all state and federal drinking water standards.

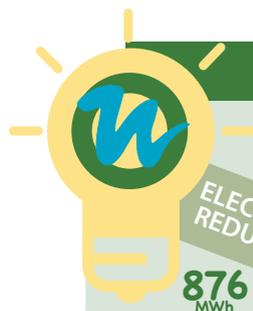
- 1 Pretreatment:** The first steps in the treatment process combine preoxidation with ozone, coagulation, and dissolved air flotation (DAF) to remove manganese, natural color, sediment and particles, algae, protozoa, viruses, and bacteria.
- 2 Ozone:** Fine bubbles of ozone are dissolved into the water to kill bacteria, viruses, and protozoa.
- 3 Filtration:** The water passes through granular activated carbon (GAC) to remove organic compounds. Filtration also acts as a “polishing step” to remove additional particles, color, and protozoa.
- 4 Disinfection:** Chlorine is used to provide the second step of disinfection for redundancy in the overall process, and monochloramine is added to maintain a disinfectant residual throughout the distribution system.
- 5 Post Treatment:** The pH of the water is adjusted for corrosion control and fluoride is added for dental health.



To ensure the highest quality water, the Cambridge Water Department's state-certified laboratory continuously monitors the effectiveness of the treatment process and makes adjustments as needed.

Want to Learn More? “Visit” our beautiful treatment facility online at cambridgema.gov/water. Cambridge Water Department looks forward to resuming tours in 2021!

Energy Conservation Measures Add Up



ELECTRICITY REDUCTION
876 MWh

Provides power to 76 homes for 365 days!

The Cambridge Water Department takes energy consumption and energy efficiency very seriously. We completed a comprehensive Energy Audit in 2011 and began implementing the recommendations right away. In a little less than 10 years, we have decreased our total electrical power consumption by 18 percent. Our most recent project – upgrading our pumping equipment – was completed in 2020 and resulted in a reduction of 200 kilowatt-hours for EVERY million gallons of water produced at the WPF. In a year, we produce about 4,380 million gallons of water, which translates to a reduction of 876 megawatt-hours in electrical power use!

iMOM!

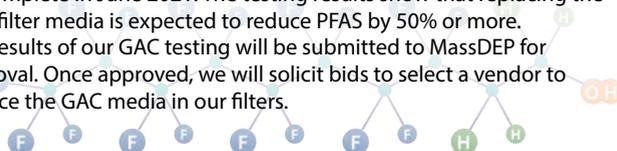
Our Partnership with the MWRA



Cambridge is a full member of the Massachusetts Water Resources Authority (MWRA), which provides a redundant source of drinking water for our community. The MWRA (PWS #6000000) supplies wholesale water to local water departments in 53 cities and towns in greater Boston and MetroWest, and three in Western Massachusetts. MWRA water comes from the Quabbin Reservoir, about 65 miles west of Boston, and the Wachusett Reservoir, about 35 miles west of Boston. The Water Department purchased 16.1 million gallons (MG) from the MWRA from August 13-14, 2020 and 3.3 MG on September 9, 2020 allowing us to conduct an emergency response drill and replace a 24-inch valve. For the full MWRA Water Quality Report that includes test results for 2020 and other important information about your tap water, follow this link: mwra.com/water/html/awqr.htm

Water Quality Spotlight: PFAS

The Cambridge Water Department understands the emerging concerns about contaminants known as PFAS (Per- and Polyfluoroalkyl Substances). In August 2019, we began proactively monitoring the drinking water at Fresh Pond. In October 2020, the MassDEP enacted a standard of 20 parts per trillion (ppt) for the sum of the following six PFAS (PFAS6) compounds: PFOS (perfluorooctanesulfonic acid), PFOA (perfluorooctanoic acid), PFNA (perfluorononanoic acid), PFHxS (perfluorohexanesulfonic acid), PFHpA (perfluoroheptanoic acid) and PFDA (perfluorodecanoic acid). A “part per trillion” is analogous to a grain of sand in an Olympic size swimming pool. Cambridge has not exceeded the new standard since these regulations became effective; however, to provide the safest water for our customers, we are planning to upgrade the Granular Activated Carbon (GAC) filter media that we use in our treatment plant to remove PFAS. We began testing alternative types of GAC media in August 2020, which should be complete in June 2021. The testing results show that replacing the GAC filter media is expected to reduce PFAS by 50% or more. The results of our GAC testing will be submitted to MassDEP for approval. Once approved, we will solicit bids to select a vendor to replace the GAC media in our filters.



Important Information from EPA & MassDEP about Sources of Drinking Water and Drinking Water Contaminants

Sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source water include:

- ◆ Microbial contaminants, such as viruses and bacteria, may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife
- ◆ Inorganic contaminants, such as salts and metals, can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, and farming
- ◆ Pesticides and herbicides may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses
- ◆ Organic chemical contaminants include synthetic and volatile organic chemicals that are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems
- ◆ Radioactive contaminants can be naturally occurring or be the result of oil and gas production, and mining activities

In order to ensure that tap water is safe to drink, MassDEP and EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. FDA and the Massachusetts Department of Public Health regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contamination. The presence of contaminants does not necessarily indicate that water poses a health risk.

More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health

care providers. EPA/Centers for Disease Control and Prevention (CDC) guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline: 800-426-4791.

If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Cambridge Water Department is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested for free. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at epa.gov/safewater/lead.



Protect Your Drinking Water at Home!

A "cross connection" is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops (say, because of fire hydrant use in the City) when the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Over half of cross-connection incidents involve unprotected garden hoses.

For additional information on cross connections and on the status of Cambridge's cross connection program, please contact by phone, email or website:

John Blouin | Cambridge Water Department Cross Connection Supervisor | 617-349-4025
jblouin@cambridgema.gov, cambridgema.gov/Water/administration/crossconnectioncontrol



Here are some simple steps that you can take to prevent cross-connection hazards:

- ◆ Never submerge a hose in soapy water buckets, pet watering containers, pools, tubs, sinks, drains, or chemicals
- ◆ Buy appliances and equipment that come with a built-in backflow preventer
- ◆ Install a hose bibb vacuum breaker on every threaded water fixture. This inexpensive device is available at most hardware stores and home improvement centers, and the installation is as easy as attaching a garden hose to a spigot



Compound		Units	Highest Level Found	Range of Detections (low-high)	Highest Level Allowed (MCL or MRDL)	Ideal Goal (MCLG or MRDLG)	Violation	How it gets in the water
Regulated Compounds	Barium	ppm	0.046	0.046	2	2	NO	Erosion of natural deposits
	Chlorine (as monochloramine)	ppm	2.3 ⁽¹⁾	0.95 - 3.4 ⁽²⁾	4	4	NO	Water disinfectant
	Copper ⁽³⁾	ppb	40	1 - 53 (No homes exceeded the AL)	AL = 1,300	1,300	NO	Corrosion of household plumbing systems
	Fluoride	ppm	0.91	0.05 - 0.91	4	4	NO	Added to water to promote strong teeth
	Lead ⁽³⁾	ppb	4	0 - 12 (No homes exceeded the AL)	AL = 15	0	NO	Corrosion of household plumbing systems
	Nitrate as Nitrogen	ppm	0.58	0.23 - 0.58	10	10	NO	Naturally present in the environment
	Nitrite as Nitrogen	ppb	45	0 - 40	1,000	1,000	NO	Runoff from fertilizer use
	PFAS6 ⁽⁴⁾ (Oct.-Dec. 2020)	ppt	16	12 - 16	20	N/A	NO	Man made chemicals. #Full details below
	Total Haloacetic Acids	ppb	27 ⁽⁶⁾	3.7 - 17 ⁽²⁾	60 ⁽⁶⁾	0	NO	Byproduct of water disinfection
	Total Trihalomethanes	ppb	16 ⁽⁶⁾	8.7 - 26 ⁽²⁾	80 ⁽⁶⁾	0	NO	Byproduct of water disinfection
Turbidity ⁽⁷⁾	NTU	0.26	0.06 - 0.26	TT = 0.3 NTU	N/A	NO	Suspended matter from soil runoff	
Compound		Units	Highest Level Found	Range of Detections (low-high)	Highest Guidance Level (SMCL or ORSG)	Ideal Goal (MCLG or MRDLG)	Violation	How it gets in the water
Secondary/Guidance Compounds	Aluminum	ppb	24	No range, 1 sample required	200	-	NO	Erosion of natural mineral deposits
	Calcium	ppm	25	No range, 1 sample required	-	-	NO	Naturally occurring minerals
	Chloride	ppm	174	No range, 1 sample required	250	-	NO	Erosion of natural mineral deposits and road salting activities
	Chloroform	ppb	5.1	1.0 - 9.8	70	-	NO	Byproduct of water disinfection
	Manganese	ppm	5.4	No range, 1 sample required	-	-	NO	Naturally occurring minerals
	Sodium	ppm	112	No range, 1 sample required	20 ⁽⁸⁾	-	NO	Road salt
	Sulfate	ppm	30	No range, 1 sample required	250	-	NO	Erosion of natural mineral deposits
	Total Dissolved Solids	ppm	390	No range, 1 sample required	500	-	NO	Naturally occurring minerals
Unregulated Contaminant		Units	Average Detected (Range Detected, low-high)		Possible Sources			
Samples collected January – September 2020, prior to October 2, 2020 formal adoption of MCL								
Perfluorooctanesulfonic acid (PFOS)	ppt	3.0 (1.8 - 3.9)		# Man-made chemicals. Used as surfactants to make products stain or water resistant, in fire-fighting foam, for industrial purposes, and as a pesticide. Used in fluoropolymers (such as Teflon), cosmetics, greases and lubricants, paints, adhesives, and photographic films.				
Perfluorooctanoic acid (PFOA)		6.9 (6.3 - 7.3)						
Perfluorohexanesulfonic acid (PFHxS)		2.8 (2.6 - 3.1)						
Perfluoroheptanoic acid (PFHpA)		2.8 (2.4 - 3.2)						
Perfluorohexanesulfonic acid (PFHxA)		4.3 (3.5 - 5.1)						
Perfluorobutanesulfonic acid (PFBS)		2.4 (2.0 - 2.7)						

Notes

- Highest level detected is based on running annual average of monthly samples.
- Highest value in range is based on individual samples, rather than averages.
- The Action Level (AL) and the highest level found are based on the 90th percentile of the samples.
- On October 2, 2020 MassDEP adopted a formal MCL for PFAS6 compounds (PFOS, PFOA, PFHxS, PFNA, PFHpA, and PFDA) which are regulated as the sum of six individual compounds.
- No other volatile organic compounds (VOCs) were detected other than trihalomethanes.
- Highest level allowed (MCL) for this substance is based on the running annual average of four quarterly samples.
- TT= Treatment Technique: Turbidity is a measure of treatment performance and is regulated as a treatment technique. 100% of samples met the TT requirement.
- An 8 ounce glass of Cambridge water contains approximately 27 milligrams of sodium, well within the FDA's "very low sodium" category.

Terms & Abbreviations

- AL: Action Level** – The concentration of a contaminant that, if exceeded, triggers treatment or other requirements, which a water system must follow.
- MCL: Maximum Contaminant Level** – The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- MCLG: Maximum Contaminant Level Goal** – The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- MRDL: Maximum Residual Disinfectant Level** – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
- MRDLG: Maximum Residual Disinfectant Level Goal** – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
- N/A: Not Available** – An ideal goal has not been established by EPA or MassDEP for this compound.

ND: Not Detected

NTU: Nephelometric Turbidity Unit – A measure of the turbidity (or clarity) of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

ORSG: Office of Research and Standards Guideline – Guidance values developed by MassDEP ORS in absence of any other federal standards or guidance.

pCi/L: Picocuries per liter – A measure of radiation.

ppb: Parts per Billion or micrograms per liter – (µg/L)

ppm: Parts per Million or milligrams per liter – (mg/L)

ppt: Parts per Trillion or nanograms per liter – (ng/L)

SMCL: Secondary Maximum Contaminant Level – Concentration limit for a contaminant which may have aesthetic effects such as taste, odor, or staining.

TT: Treatment Technique – A required process intended to reduce the level of a contaminant in drinking water. Turbidity is a measure of treatment performance and is regulated as a treatment technique. 95% of our turbidity readings each month must be below 0.3 NTU.

90th Percentile – Nine out of every 10 homes were at or below this level.



Cambridge Water Department
250 Fresh Pond Parkway
Cambridge, MA 02138

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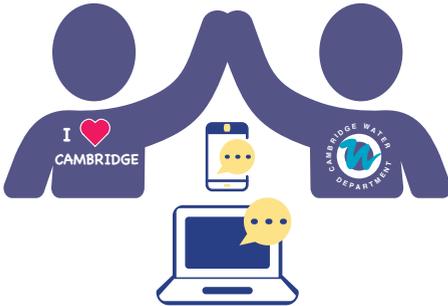
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 or on the web at cambridgema.gov/water

Communication is Key!



At the Cambridge Water Department,
we love to share how we produce
the highest quality water and
communicate with our customers.

Our website contains information from source to tap!

Visit www.cambridgema.gov/water, or check out these sources of information:

- ◆ Learn all about the Water Department, from source to treatment to distribution, through our beautiful brochure. **Visit:**  cambridgema.gov/Water/administration/watertreatmentplanbrochure
- ◆ Wondering if you have a lead service line? We maintain a list of service line material on our website. **Visit:**  cambridgema.gov/Water/Distribution/waterserviceinformation
- ◆ The highest quality source water means the best drinking water, so we keep a close watch. Check out our source water quality monitoring program data. **Visit:**  cambridgema.gov/Water/watershedmanagementdivision/sourcewaterprotectionprogram/sourcewaterqualitymonitoringprogram/datamanagement/reportsandresearch
- ◆ The United States Geological Survey (USGS) even monitors our water quality in real time. **Visit:**  waterdata.usgs.gov/ma/nwis/current?type=cambri&group_key=NONE&search_site_no_station_nm=&format=html_table

Cover photograph courtesy of Robert Costello ©2021.

This report contains very important information about your drinking water. Please translate it, or speak with someone who understands it.

Este informe contiene información muy importante acerca de su agua potable. Pídale a alguien que traduzca esta información a usted o hablar con alguien que entiende esta información.

本报告含有关于您所在社区的水质的重要信息。请您找人翻译一下或请能看懂这份报告的朋友给您解释一下。

Ce rapport contient des renseignements très importants sur votre eau potable. Demander à quelqu'un pour traduire cette information à vous ou à parler avec quelqu'un qui comprend cette information.

If you have any additional questions about your water supply, please contact Ed Dowling, Director of Water Operations at 617-349-4773



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